EXHIBIT 4

Transcript Of Google IO 2016 Google Play Store on Chrome Announcement

May 19, 2016

0:00   HIROSHI LOCKHEIMER: Apologies for the delay.

0:01   Thank you for coming.

0:01   Really appreciate it.

0:03   Obviously, a lot of interest lately

0:06   on how Google's two computing platforms, consumer computing

0:09   platforms, Chrome OS and Android, could come together.

0:12   It's been a lot of speculation on that and a lot of discussion

0:15   about that.

0:16   The approach we've taken generally

0:18   is to take the best attribute of each

0:21   and share it with the other.

0:23   So for instance, yesterday at the keynote,

0:25   we talked about how updates on Android

0:27   will use similar technology to how Chrome OS updates work.

0:31   And today, we wanted to talk about a technology

0:33   in the opposite direction and give you a bunch of demos

0:37   and leave room, hopefully, for Q&A. So I'm

0:39   going to be very brief here and actually

0:41   introduce Kan, director of product management for Chrome

0:44   OS, to update you on our latest technology.

0:49   KAN LIU: Thanks, Hiroshi.

0:51   And good morning, everyone.

0:53   Most of us use our laptops every day, and many of us

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0:58   use them hours at a time.

1:00   We use our laptops whenever we want

1:02   to be creative or productive, whether it's

1:07   researching a family vacation, or building the next killer

1:11   app, or just comparison shopping to find a new laptop.

1:16   Having the speed of a keyboard, the precision of a mouse

1:19   pointer, and the multitasking capabilities of a large screen

1:25   can be extremely useful in these kind of situations.

1:28   But for many years, laptops and computers in general

1:33   were really hard to use.

1:35   They were slow, and they got slower

1:37   the longer you used them.

1:39   They were insecure.

1:40   They were never up to date.

1:41   And worst of all, not everyone could afford one, at least not

1:44   a good one.

1:46   So five years ago, we set out to rethink the computer

1:51   and make computing a lot more accessible for everyone.

1:56   This meant building an operating system that was fast, secure,

2:03   and simple, but most importantly,

2:05   focused on helping users get their everyday stuff done.

2:10   And that's how Chromebooks were born.

2:13   They're fast to start up, easy to set up, simple to use,

2:18   and designed to be secure.

2:20   They're also always up to date, and they get better

2:24   with every update.

2:26   Chromebooks are also incredibly easy to manage and share,

2:31   and these attributes and values have really

2:33   resonated with our users.

2:35   It has led to continued momentum in Chromebooks.

2:40   In fact, today, all the top computer makers

2:44   are building and selling Chromebooks,

2:46   like Lenovo, Dell, HP, Samsung, and many, many more.

2:53   In the education market, Chromebooks

2:55   are now outselling all other devices combined.

3:00   And we're also seeing strong growth from enterprise,

3:04   where Chromebooks, Chromebox for meetings,

3:07   and other purpose-built Chrome devices

3:10   have been adopted by large companies

3:13   like Whirlpool, Toyota, Pinterest, and many more.

3:19   And of course, consumer demand has been as strong as ever.

3:23   In fact, according to IDC, in Q1 of this year,

3:28   Chromebook shipments overtook Macs in the US.

3:33   [APPLAUSE]

3:36   So what that means is thanks to your support,

3:40   Chrome OS is now the number two most popular PC operating

3:44   system in the US.

3:46   We're incredibly humbled and excited about this,

3:51   but this is really just a reflection

3:53   of how well Chromebooks have fit the needs and use cases of what

3:57   people are looking for.

4:00   So that's how things have unfolded over the last five

4:02   years.

4:03   But in that time, the way people use computing has also

4:08   changed a lot.

4:09   In particular, apps, both iOS and Android,

4:14   have become a huge part of our personal computing experience.

4:19   Whether it's checking the weather app for your barbecue,

4:23   consuming the latest snaps on Snapchat,

4:26   or just sending your favorite track to your Sonos system,

4:29   apps have become a central part of our everyday lives.

4:35   So we wanted to make Chromebooks even better

4:37   by combining these experiences and use cases with what people

4:42   already love about Chromebooks.

4:44   This means bringing together the breadth and versatility

4:50   of the millions of apps in the Play store

4:53   with the speed, simplicity, and security of a Chromebook.

4:58   So that's why today, we're announcing-- you

5:02   may have already heard-- we're bringing the Play

5:06   Store to Chromebooks.

5:08   [APPLAUSE]

5:15   So this means you'll now be able to access

5:18   all your favorite Android apps and games not

5:21   just on a phone or a tablet, but also on a laptop running Chrome

5:26   OS.

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5:28   So your Chromebook now will have the world's

5:31   most popular and powerful browser and the world's

5:35   most popular app store, enabling multitasking

5:39   productivity apps like Adobe Lightroom, Photoshop, Office,

5:43   Skype, plus all the games you've already

5:46   come to love like "Clash of Clans," "Hearthstone,"

5:49   "Need for Speed," and many more, all on one device.

5:54   This also means you'll now have access to apps and experiences

5:59   that you never had access to on a PC

6:01   before, like Snapchat, for example,

6:04   or our YouTube for Kids app.

6:07   So this means-- and I'm not saying you should do this--

6:09   but you can actually write your term paper

6:12   and get your snaps all on the same device

6:16   without ever having to take your phone out of your pocket.

6:20   So I'm here with Katy Roberts Hoffman,

6:22   one of the product managers on the Chromebook team,

6:26   and we're going to show you how this all works.

6:31   All right, so let's switch over now to the demo machine.

6:35   One of the first things you'll notice

6:37   is this looks a lot like Chrome OS, and that's because is it.

6:40   It's the same Chrome OS our users have come to love.

6:43   It's fast.

6:44   It's simple.

6:45   It's secure.

6:46   But one of the big changes-- for those of you with a sharp eye,

6:49   you may have already noticed this.

6:50   There's now a Play Store icon pinned to the bottom shelf.

6:54   So let's go ahead and open up that icon, and here

6:57   you have the entire Play Store.

7:00   You'll be able to browse through it

7:01   as you would on any other Android device,

7:03   and you install any app that you want.

7:05   In fact, let's try installing this "Bejeweled Stars" app.

7:08   This looks like a pretty fun-- for an app,

7:11   so let's go ahead and start the installation process.

7:15   And there you go.

7:16   It's installing.

7:18   So now, while this is installing,

7:20   one of the things I want to talk to you about

7:22   is how seamlessly we've integrated Android framework

7:26   into Chrome OS.

7:28   So things like-- for example, she just showed you

7:30   the Notifications Center, for Android notifications

7:33   will seamlessly open up in the Notification Center as well.

7:38   So all of this is seamlessly integrated together.

7:42   One of the things that I've been meaning to do recently

7:45   that my wife keeps reminding me about

7:47   is building a poster for my daughter's third birthday.

7:51   And so I'm going to take an example here and actually show

7:54   you how I'm going to do this on a Chromebook now.

7:56   So to give you a little background, my daughter's

8:01   favorite activities and favorite things in the world

8:03   are-- one is Piglet, and two is ice cream.

8:08   Unfortunately, I don't actually have a photo of my daughter

8:11   with both Piglet and ice cream, so I need to create one first.

8:15   Wouldn't it be great if I could Photoshop a photo like that?

8:18   So I've actually got Photoshop Mix already installed

8:21   on this device from the Play Store,

8:22   so I'm going to open that up.

8:24   And here, I've already got loaded a photo of my daughter

8:27   with Piglet from our last vacation.

8:29   She's actually trying to feed Piglet a pen right now.

8:31   Let's see if we can add a photo of ice cream instead.

8:34   So let's go ahead and click the Plus button.

8:36   It turns out Adobe Stock has some great photos in it.

8:38   And in fact, they've got a really one of Neapolitan

8:40   ice cream cone-- which, by the way,

8:42   is a really great dessert that starts with the letter N,

8:45   in case anybody's looking for something to vote.

8:48   So it's a little out of proportion.

8:49   That's OK.

8:50   So she has a touch screen here, so she's

8:51   going to use her fingers to actually rotate and put

8:54   the ice cream cone and resize it to just the right place.

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8:58   So this looks pretty good, but this still

8:59   doesn't look quite right because the ice cream cone is actually

9:02   sitting on top of her hand.

9:04   So let's go ahead and cut out the part

9:05   of the cone that's overlapping so it

9:07   looks more like she's holding

9:08   It.

9:09   So go ahead and zoom in.

9:10   Again, she's using her hand here to manipulate directly,

9:12   and it's just really easy with her finger just

9:14   to cut out exactly the portion of the photo that's

9:17   overlapping.

9:18   So we've done this with multiple layers with her hand.

9:21   It's just really easy on a Chromebook.

9:23   And now all of a sudden, we've got a great image.

9:26   But I'm going to save this now so I can import this

9:28   into the poster I'm actually working on in Word.

9:31   So let's go ahead and save it.

9:32   It's saved.

9:33   Let's go ahead and close that out.

9:35   Now, switch over to Office, where

9:37   I've already got the poster loaded,

9:39   but it's missing the photo.

9:40   So let's go ahead and click Insert Pictures,

9:43   and let's select the photo that we just created.

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9:47   And there you go.

9:48   I think that looks pretty good.

9:49   So now I'm going to go ahead and share this with my wife,

9:54   and it's pretty easy on a Chromebook now.

9:56   All you have to do is click the Share button,

9:57   send as an attachment, file type, Gmail.

10:01   And just like that, the Gmail app automatically

10:05   pops up with a document already attached,

10:08   and all I have to do is type the email address, and it's sent.

10:11   And that's because of the way that we've seamlessly

10:13   integrated the Android intents system into Chrome OS,

10:17   so it's the exact same experience you already

10:19   have on your phone, simple flow that you already

10:21   have on your phone or a tablet.

10:23   So another really compelling and great feature of Android apps

10:28   is that they work really well offline.

10:29   For example, if you're on an airplane without Wi-Fi,

10:32   you can still edit your photos.

10:35   You can still play your favorite playlists.

10:38   You can still type up a document or watch a Play movie.

10:41   All that stuff just works seamlessly

10:42   on Android devices and Android apps.

10:45   So here we've got another demo machine set up,

10:47   and if you look at the right corner here,

10:49   you'll see that it's completely disconnected, completely

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10:51   without Wi-Fi.

10:52   And I'm going to go ahead and show you

10:53   another one of my favorite games, which

10:55   is "Galaxy On Fire 2."

10:57   So this app is awesome.

11:00   It's super smooth from a graphics perspective.

11:02   It allows her to actually use the touchscreen controls

11:05   to go ahead and fly around.

11:07   And because it's on a laptop, it's

11:08   using the desktop class hardware as well.

11:11   So this experience is actually pretty great.

11:14   Maybe one of the things we can do

11:15   is actually switch over to the Play Movies app

11:19   so I can show you how I can watch a real movie.

11:21   So I've got the Play Movies app open here.

11:23   And again, because we're completely offline,

11:25   apps like Play Movies just work.

11:28   And this is showing me all the movies

11:29   that I've already downloaded.

11:32   It turns out I'm a big "Kung Fu Panda" fan,

11:33   but I actually haven't had time with everything going on

11:36   to catch up on the latest "Kung Fu Panda 3."

11:38   So why don't we go ahead and click "Kung Fu Panda 3"

11:40   and play it and click play?

11:43   And there it goes.

11:45   I can now watch my movie completely offline without ever

11:49   having any internet connection.

11:51   So this isn't obviously just true for Play Movies,

11:54   but it's also true for things like your Play Music, your Play

11:59   Books.

12:00   For Google Photos, which happens to be a really great app,

12:03   that works completely offline.

12:04   So you can sync all your photos and be able to view them

12:07   on an airplane.

12:09   And now all these apps and experiences

12:11   work completely offline on a Chromebook as well.

12:15   So thanks, Katy.

12:17   And that was just a small glimpse

12:19   of some of the cool new things you'll

12:21   be able to do on a Chromebook.

12:24   And we're super excited about this, but since this is I/O,

12:29   let's geek out for a moment and actually tell you

12:31   guys about how we did this.

12:34   So we've been working very closely and side

12:36   by side with the Android team to make both Chromebooks

12:39   and Android better.

12:40   For example, as Hiroshi mentioned earlier,

12:43   we've actually brought the Chrome OS A/B update

12:45   system to Android N.

12:49   While we were doing this, we realized

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12:52   that we can use the Linux container, which is actually

12:55   a really popular technology that's used in data centers

12:58   around the world and Google actually uses in our own cloud

13:02   infrastructure today, to bring Android framework on top

13:08   of the existing Chrome OS stack.

13:10   So this allows us to bring together

13:12   the best of both worlds.

13:14   For example, in addition to Android security features

13:17   like SC Linux, the container also

13:21   provides a secure and isolated runtime environment,

13:26   and all of this is built on top of the security foundations

13:29   of existing Chrome OS, such as verified boot, user data

13:35   encryption, continuous updates every six weeks.

13:39   And this isn't just for the Chrome OS side,

13:40   but also for the Android framework as well.

13:42   So that means all these apps will

13:45   be running on the latest stack with the latest security

13:50   patches and the latest APIs.

13:55   And this container is actually integrated completely

13:59   with the Chrome OS system services like input/output,

14:04   graphics, connectivity.

14:06   We've basically built an Android hardware abstraction layer,

14:10   and we've put the Android framework on top of it.

14:14   This enables us to run the full Android framework natively,

14:18   and that's how we can ensure Android apps can

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14:22   run full speed with no overhead and no performance penalties

14:27   from emulation or virtual machines.

14:30   This also means that Chromebooks are now

14:33   fully compatible with any Android app.

14:36   Of course, like all Android devices,

14:39   regardless of whether it's a phone, tablet, or a laptop,

14:43   the Google Play Store will allow installation of apps

14:46   based on the hardware components on these devices.

14:51   So for example, a phone dialer app

14:53   may require cellular capabilities

14:55   in order to install.

14:57   So with Play Store coming to Chromebooks,

15:00   we've been working with our partners

15:02   to ship more and more devices that will have the hardware

15:06   components to support more of these use cases and apps

15:11   that users want to install on their computers.

15:15   And because of the increased value

15:16   that users are now getting, our partners

15:19   are also shipping more premium devices,

15:22   like some of these from Dell, HP, and Lenovo

15:26   that have already come out recently.

15:28   And finally, the Play Store and Android apps

15:31   will work regardless of the SLC platform on the device.

15:35   This means it'll support both ARM and Intel platforms.

15:40   In fact, today's demos were run both on a ARM

15:44   device and an Intel device.

15:47   So next, I'm actually going to bring up

15:49   my friend and colleague, Rajen, who leads the Chrome OS

15:52   and Android education and enterprise

15:55   teams to give you a little bit more insight

15:57   and talk about the implications of having the Play

16:00   Store on Chromebooks for both enterprise and education.

16:04   [APPLAUSE]

16:09   RAJEN SHETH: Thank you, Kan.

16:10   And with enterprise and education,

16:12   we talked a little bit about how Chromebooks have been

16:14   a great success in education.

16:15   But really, to take a step back, the reason for this

16:18   is that there are two big trends happening

16:20   in enterprise and education.

16:22   The first is more and more companies and schools are

16:25   moving to the cloud.

16:26   What seemed kind of heretical 10 years ago

16:29   is actually now becoming mainstream.

16:31   And so we see the Chromebook as a great way

16:35   for businesses and schools to take advantage of that.

16:37   But the other big thing is that businesses and schools

16:40   want to bring computing to more of their users,

16:43   more of their employees, more of their students,

16:45   and actually transform their organizations by doing so.

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16:49   So we've seen this in schools first.

16:51   That's the first place that this has happened.

16:53   So as an example, we have about 50 million students

16:56   that are using Google Apps for Education on an active basis,

17:01   and there are many other cloud-based applications,

17:03   things like Khan Academy, things like Brain Pop that

17:05   are being used throughout schools to really transform

17:08   education.

17:09   But the thing that schools told us about five years ago was

17:12   this is all great, but it's not great.

17:14   It doesn't let us change our curriculum

17:16   unless we're able to get computing out

17:19   to more of our students on a daily basis.

17:21   Chromebooks fit that need extremely well.

17:24   They were easy to use, easy to manage, easy to share,

17:27   and also very affordable.

17:29   And so schools really gravitated to Chromebooks as the way

17:32   that they could bring productive tools to their students

17:35   and actually change how they teach.

17:37   As Kan mentioned, last year, a majority

17:40   of the devices that went out into schools in the United

17:43   States were Chromebooks.

17:44   But more importantly, it's actually

17:46   changed how those schools teach.

17:49   Schools can actually move more towards

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17:50   individualized education and blended learning, concepts

17:54   that actually make it so that students learn better.

17:57   And that's the thing that we're most proud of.

17:59   We're now seeing that same trend happen in business.

18:02   Over 2 million businesses are using Google Apps for Work.

18:06   But in addition to that, there are

18:07   many other cloud-based applications

18:09   that businesses are migrating to,

18:11   and so the Chromebook again is a perfect fit

18:14   for that kind of environment.

18:16   But also, what we're also hearing from our customers

18:19   is that there are many employees that they want

18:21   to give access of computing to.

18:23   As an example, there are 3.2 billion people

18:27   walking into a workplace in the world today.

18:29   However, there are only about 750 million PCs in businesses

18:34   today.

18:34   So there are many, many users that

18:36   don't have any access to computing,

18:38   and we want to change that.

18:40   We've already seen this happen with Chromebooks-- for example,

18:43   in retail stores, where they're enabling all of their employees

18:47   to have access to computing and changing their processes as

18:50   well.

18:50   We've seen this happen in places like hotels and restaurants

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18:53   and manufacturing plants as well.

18:57   We've invested very heavily over the course

18:59   of the last couple of years to really make Chromebooks

19:01   fit well in the enterprise.

19:03   We've invested in making sure that we integrate

19:05   with enterprise infrastructure so it really

19:07   fits in well with what businesses have today.

19:10   We've also worked with our partners

19:12   like HP, Lenovo, Dell, Acer, and Asus

19:15   to have enterprise-specific Chromebooks that really meet

19:18   the needs of business users.

19:20   But the one big thing that was still missing

19:23   is app compatibility.

19:24   Can I do the kinds of things that I

19:26   need to do on this device?

19:28   And this is where we think having

19:29   Android apps on the Chromebook will be transformational.

19:32   Now businesses can use all of the key apps

19:35   that they typically use, whether it's

19:37   things like QuickBooks, or Office, or Skype,

19:40   or many, many others that are now

19:41   available in the Play Store.

19:44   But in addition to that, they can use them offline.

19:47   Students can start to use a lot of the learning tools

19:50   that are available on Android and actually

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19:52   bring touch-based applications to students, for example,

19:55   in lower grades.

19:56   And so we think that this can actually transform, really,

19:59   how businesses approach computing once again.

20:02   So with that, I'll bring Kan back on

20:04   to round up our session.

20:06   [APPLAUSE]

20:09   KAN LIU: Hey.

20:09   Thanks, Rajen.

20:11   So we think all of this is really great for our users,

20:14   but we also believe this is going to be really

20:15   great for developers too.

20:18   If your app runs on an Android device today,

20:21   it will now be able to run on a Chromebook too.

20:25   So with the same Android framework and platform

20:28   you're used to, you'll be able to bring your existing

20:30   apps to a whole new category of devices and form factors,

20:36   and that opens up all kinds of new possibilities.

20:39   As a developer, you can now create new experiences

20:42   for track pads, keyboards, larger

20:45   screens, multiple windows.

20:48   It also means new business models.

20:51   Desktop software can oftentimes be

20:53   priced in the hundreds of dollars

20:55   or even thousands of dollars, and that's

20:57   because we can be more productive and more creative

21:00   on our laptops.

21:03   We can create a movie.

21:04   We can design a whole house, or we can write our PhD thesis.

21:10   So when is all this actually coming to Chromebooks?

21:14   Google Play will start rolling out in the next Chrome Dev

21:17   Channel, M53.

21:20   It'll be available on select devices

21:22   first, with many more devices to follow soon after.

21:26   We hope this will be a great way for developers

21:29   to start testing their existing apps on Chromebooks

21:32   and even start creating new experiences for this form

21:35   factor so that they'll be ready when we start rolling this out

21:39   to users later this year along with new hardware that

21:44   has been designed with the Play Store in mind.

21:51   So as we've always said, Chromebooks

21:55   have always been about making computing

21:57   more accessible for everyone.

22:00   And by bringing together the best of Android and Chrome OS,

22:04   we believe we're making a big leap forward

22:07   because not only are we addressing many of the use

22:09   cases and needs that people have with their Chromebooks today,

22:14   but we're also betting on the millions of Android developers

22:19   that are out there innovating every day

22:21   to create new experiences and experiences that have never

22:26   even been possible on a PC platform before.

22:30   So this is just the beginning, and we're

22:33   super excited to see what the future holds for everyone.

22:37   So thank you all for coming, and now I'm

22:40   going to actually bring up a few members of the team

22:42   and open it up to press Q&A. Thank you.

22:47   [APPLAUSE]

22:50   [MUSIC PLAYING]